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# **Group size and personalization's effect on Facebook message response rates**

## **Abstract**

The bystander effect is one of the most well researched and replicated phenomena in social psychology. It repeatedly shows that the presence of other people inhibits the impulse to help due to the concept of diffusion of responsibility. Recently, researchers have studied this phenomenon online in the context of emails, internet chat rooms, and discussion forums. The results from these studies provide evidence that the presence of ‘virtual’ others decreases the likelihood of helping behavior and strongly suggests that diffusion of responsibility also occurs in an internet setting. Personalization is another factor that strongly influences helping behavior. Referring to a person by name when soliciting a help request increases the likelihood of receiving assistance. Yet, with the most popular activity on the internet now being social media, it would be beneficial to know if diffusion of responsibility and personalization also occur in this section of the online world. To investigate the validity of diffusion of responsibility as well as personalization in a social media context, 176 participants sent out one private Facebook message soliciting help in the form of an online survey to 1, 3, 6, or 9 of their Facebook friends. They greeted their friend(s) by name or just said ‘Hi or ‘Hi all.’ Responses to the survey provided strong support for personalizing the greeting, but did not support the theory of diffusion of responsibility. The practical and theoretical applications of these findings are discussed.

**Keywords: Social networking; social network analysis; diffusion theory; decision making**

## Introduction

Research on helping behavior has surged since the controversial Kitty Genovese case in the 1960's. Kitty Genovese was stabbed and murdered near her apartment in New York. She let out several screams and it was noted that 38 people heard the incident yet no one came to her aid (Hogg & Vaughan, 2010). This outraged the public and researchers began studying possible reasons behind the shocking lack of help. It was found that the social inhibition of helping is a fairly consistent phenomenon and one factor that increases social inhibition is diffusion of responsibility, also known as the bystander effect (Latane & Nida, 1981). The bystander effect is one of the most well researched and replicated phenomena in social psychology. It repeatedly shows that the presence of other people inhibits the impulse to help (Latane & Darley, 1968; Latane & Rodin, 1969; Latane & Darley, 1970; Latane & Nida, 1981). People are less likely to help when there are others present than when they are alone. In addition, the greater the number of people present, the less likely help will be forthcoming (Hogg & Vaughan, 2010). Classic studies on helping behavior simulated various emergency situations and manipulated how many people were present at the event. In each of these studies the presence of others was found to lower the individual's feelings of personal responsibility and greatly reduced helping (Latane & Darley, 1968, Latane & Rodin, 1969, Latane & Darley, 1970; Latane & Nida, 1981). Since then research has continued to support these claims.

A more recent incident displaying the bystander effect occurred in an online setting. In 1998, Larry Froistad confessed to murdering his daughter to 200 others on an online self-help group (Harman, 1993). Only three of the 200 bystanders reported this to authorities. Like the Kitty Genovese case, there was a public outcry and researchers quickly began studying diffusion of responsibility in online environments. An emerging body of research has shown that the interaction between computer mediated communications is governed by

the same laws as in other contexts and the theory of bystander intervention can also be used to explain and predict intervention in online environments (Markey, 2000, Barron & Yechiam, 2002, Barron & Yechiam, 2003, Blair et al, 2005). The main online domain that has shown diffusion of responsibility so far is emails. Addressing an email request to a single recipient as opposed to multiple people elicited not only more responses but responses that were lengthier and more helpful (Barron & Yechiam, 2002). A following study showed that the virtual presence of many others inhibits email responsiveness but unresponsiveness does directly increase with proportion to group size (Blair et al, 2005). These findings suggest that people are noticeably influenced by groups of three or more but a ceiling effect occurs after that point (Blair et al, 2005). This finding also carries over to online discussion groups. Members of discussion groups are three times more likely to fill out a short survey when emailed individually rather than when sent an email to the entire discussion forum subscription list (Yechiam & Barron, 2003).

The effect of personalization in online settings is another topic that has interested researchers. Studies have shown that referring to individuals by their names significantly increases helping behavior and response rates not only in the offline world, but the online world as well (Heerwegh, 2005; Yechiam & Barron, 2003; Markey, 2000; Joinson & Reeps, 2007). The positive effects of personalization have been shown with emails. Personalizing emails with individuals' first names significantly increases response rates (Heerwegh, 2005). Personalization also increases helping behavior in online chat rooms. In one study, a confederate logged on to a Yahoo! chat room and asked the group 'Can anyone tell me how to look at someone's profile?' Assistance was received more quickly when help was asked for by specifying a person's name. There was a weak correlation between the number of people in the chat room, but a significant effect between group size and specifying a name. The smaller the group the more help the confederate received when he specified a name

(Markey, 2000). The type of personalization is also important. For example, addressing individuals by their first name rather than their first and last name is the most effective in increasing response rates. First names are less formal and increase the feeling of personalization (Joinson & Reeps, 2007). These findings on personalization are in line with social exchange theory which states that the actions of individuals are motivated by the return their actions will bring (Heerwegh, 2005). Personalizing the emails makes the recipients feel more important and valued and therefore they are more likely to comply with the request (Heerwegh, 2005). This is also closely connected to the reciprocity heuristic. This "rule says that we should try to repay, in kind, what another person has provided us" (Cialdini, 1984, p. 29). They also ascribe their results to the social exchange theory; personalized salutations may be encouraging socially desirable behavior among participants and that personalization increases the reward of a survey by making them feel more important and valued (Joinson & Reeps, 2007).

Although these recent studies provide information on the bystander effect in online situations, they ignore the most popular realm of the internet, social media (Qualman, 2009). With the growing popularity and size of social media along with the increasing amount of time spent on these sites, it would be beneficial to know if diffusion of responsibility and personalization also occur in the fastest growing part of the online world (Qualman, 2009). Social network sites (SNS) have experienced a massive boom since their creation a few years ago. Internet users spend over two and a half hours on SNS's a day (Bonds-Raacke & Raacke, 2010) and 55 minutes a day on Facebook alone (Bowe, 2010). Facebook is the most common and popular social media site currently in use with over 1.55 billion monthly active users worldwide (Facebook statistics, 2015). Facebook provides the opportunity for users to create their own profiles where they can post information about themselves, their educational background, work history, hobbies and interests, relationship information, and pictures. Users

can also send private and public messages to friends as well as share videos and pictures. Facebook's "private message" feature (also known as Facebook Messenger) is similar to email in many ways yet also distinct. Like email, individuals can send private, electronic messages with text and attachments. Yet, unlike email, Facebook Messenger is mostly for friends and acquaintances. Email can be used to stay in contact with family and friends but is better suited for work and business correspondence; it is therefore used more for interaction with strangers. In addition, with Facebook Messenger, all of the individuals' names included in the message when typed are directly linked to their own Facebook pages. So, you can "tag" people by simply typing their name. Facebook Messenger is more interactive and friends and family can not only stay in touch but also swap funny videos or interesting websites and even form a group message where many individuals can message at once.

With the differences between social media and email and chatrooms as well as other recent technological advances, it would be beneficial to know how people are helping one another on social media sites. In addition, now individuals can use SNS on their cell phones and other mobile devices. Thus, the boundaries between internet and real life communication are becoming blurred. Explorations and research in social media are beginning to expand on this substantial cultural movement, yet the psychology of social media is still in its infancy stage due to social media's brief history. So far, researchers have delved into topics such as identity formation, self-disclosure, uses and gratifications, social capital, personality differences, social media's impact on romantic relationships, and social media's mirror on the nature of the self (Bonds-Raacke & Raacke, 2010; Bowe, 2010; Christofides, Muise, & Desmarais, 2009; Ellison, Steinfield, & Lampe, 2007; Moore & McElroy, 2011; Kreps, 2010; Ryan & Xenos, 2011; Steinfield, DiMicco, Ellison, & Lampe, 2009; Utz, & Beukeboom, 2011; Zhao, Grasmuck, & Martin, 2008). Yet, social media's impact on prosocial behavior has not been explored. These recent studies along with the classic research



on helping behavior shed light on the power of the diffusion of responsibility theory as well as personalization and how it is applicable in both offline as well as online environments (Blair et al, 2005; Heerweigh, 2005; Joinson & Reeps, 2007; Latane & Darley, 1968; Markey, 2000; Barron & Yechiam, 2002; Yechiam & Barron, 2003) Yet, with the most popular activity on the internet now being social media and the constantly increasing time spent on these sites, it would be beneficial to know if diffusion of responsibility and personalization also occur in a social media environment.

## **Overview**

To begin research in this area, the present study investigates whether diffusion of responsibility and personalization increase helping behavior in a social media context by manipulating the number of friends sent a private Facebook message soliciting help and whether or not they are greeted by name to see if this increases response rates.

Hypothesis 1: Sending the message to fewer individuals will increase the likelihood that an individual will help

Hypothesis 2: Referring to the individuals by name will increase the likelihood that an individual will help

Hypothesis 3: Sending the message to fewer individuals plus referring to them by name will provide the highest response rates

## **Method**

### **Participants**

176 individuals were recruited from a Scottish and a North American University to send out Facebook messages to their friends (recruits). The recruits were gathered from a University

research pool where they earned research credits for their research methods class. 146 were from a Scottish University and 30 were from an American University. 115 of the recruits were female and 61 were male (mean age= 20.65, SD= 4.27). All recruits were social media users and all had active Facebook accounts. Recruits had an average of 398 Facebook friends (mean =398.31, SD=101.38). There was no significant difference in the number of Facebook friends between the Scottish and American university recruits. A total of 471 participants were contacted from the recruits, of whom 81 (17%; 55 females, 26 males) completed the survey (participants). Participants had an average of 402 Facebook friends (mean= 402.42, SD=286.12).

## Design

The study employed a 4 x 2 factor independent subjects design. The first factor was “Group Size” which had four levels (1, 3, 6 or 9 facebook friends). The second factor was “Personalization” which had two levels (greeted either by name or no name).

## Procedure

Recruits were first asked to fill out a questionnaire on their social media use (adapted from Raacke & Bonds-Raacke 2008). Then, the recruits were assigned to one of the eight conditions which included sending one private Facebook message to either one, three, six, or nine of their Facebook friends and either greeting them personally by name or generically by ‘Hi’ or ‘Hi all.’ They all sent only one message (either to one or multiple friends at once). To assign the participants to conditions, each participant was given a number and the ‘Random Number Generator’ website was used to assign the participant to a condition. They were then given a random letter produced by the ‘Random Letter Generator’ website and were instructed to type in the random letter into the “To: Box.” When a letter is typed in to the

message box, a list of friends with the name starting with that letter appears. They were instructed to choose the first friend(s) that appeared.

The message said:

‘Hi (either insert friends’ names (1, 3, 6, or 9) or just say ‘Hi all’),

Would you mind filling out a quick survey for my friend’s research project? The survey takes approximately 10 minutes. The survey link is \_\_\_\_\_.

Thanks,

(Insert participant’s first name)

The survey link took the participants to an online demographic and Social Media Use and Gratifications questionnaire (adapted from Raacke & Bonds-Raacke 2008) where the number of participants who responded out of each condition was tracked. They were tracked by a simple question that asked “Which Facebook friend asked you to do this survey?” This was then tallied with the recruit list showing which condition the recruit was in (salutation and group size). The recruits sent the message in a computer lab with researchers present so the researchers could make sure that the recruits completed the experiment accurately by including the right number of participants in the message as well as the correct salutation.

## Measures

### Social Media Use and Gratifications

An adapted version of Raacke & Bonds-Raacke (2008) Social Media Use and Gratifications Scale was used to assess Participants’ online social media usage. The 36 item scale included seven open ended questions measuring participants’ level of social media use (e.g. “How long do you spend on social media sites a day?”) and 28 items measuring participants’ social

media use gratifications (e.g. “I use social media sites to keep up with friends and family,”) Participants rated their degree of agreement with each item using a five point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

## Results

A total of 471 individuals received a private Facebook message from one of the 176 recruits. 81 individuals out of the 471 (17.2%) responded to the request and completed the survey.

To test the three hypotheses, four  $\chi^2$  tests were performed. The first  $\chi^2$  was performed to test the first hypothesis that sending the message to fewer individuals will increase the likelihood that an individual will help. The result of the  $\chi^2$  test was not significant ( $\chi^2 (3) = 5.09, p = .089$ ). The number of people in each condition did not affect response rates. The response rate was highest in the three person condition (22.5%) and lowest in the six person condition (12.3%). This is shown below in Table 1.

**Table 1: Group Size**

	Response	Non Response	Total	Response Rate
<b>One Person</b>	21	84	105	<b>20%</b>
<b>Three People</b>	23	79	102	<b>23%</b>
<b>Six People</b>	17	121	138	<b>12%</b>
<b>Nine People</b>	20	106	126	<b>16%</b>
Pearson Chi-Square 5.09 Sig (2-sided) $p = .089$				

A second  $\chi^2$  test was performed to test the hypothesis that greeting the individual by name would increase response rates. Greeting the individual by their first name instead of just a generic 'Hi' or 'Hi all' dramatically increased helping behavior. The  $\chi^2$  was statistically significant ( $\chi^2 (1) = 9.97, p = .004$ ) and based on the odds ratio, individuals in the name condition were 2.23 times more likely to complete the questionnaire than individuals in the no name condition displayed below in Table 2.

**Table 2: Personalization**

	Response	Non Response	Total	Response Rate
<b>Name</b>	53	180	233	<b>23%</b>
<b>No Name</b>	28	210	238	<b>12%</b>
Pearson Chi Square 9.97 Sig (2-sided) p=.004**				

To test the last hypothesis that sending the message to fewer individuals plus referring to them by name will provide the highest response rates, group size data was split into two categories- those referred to by name and those referred to generically. Then a separate  $\chi^2$  test was performed for each category. Contrary to the hypothesis, a smaller group size did not increase response rates in the name condition, ( $\chi^2 (3) = .115, p = .765$ ). This is presented in Table 3 below.

**Table 3: Group Size and Name**

	<b>Response</b>	<b>Non Response</b>	<b>Total</b>	<b>Response Rate</b>
<b>One Person</b>	11	42	53	<b>20.8%</b>
<b>Three People</b>	14	37	51	<b>27.5%</b>
<b>Six People</b>	13	53	66	<b>19.7%</b>
<b>Nine People</b>	15	48	63	<b>22.7%</b>

Pearson Chi Square 1.15 Sig (2-sided) p= .765

In support of the hypothesis, a smaller group size did increase response rates in the no name condition ( $\chi^2 (3) = 8.06, p=.045$ ). The response rates reduced dramatically in the six and nine people conditions.

**Table 4: Group Size and No Name**

	<b>Response</b>	<b>Non Response</b>	<b>Total</b>	<b>Response Rate</b>
<b>One Person</b>	10	42	52	<b>19.2%</b>
<b>Three People</b>	9	42	51	<b>17.6%</b>
<b>Six People</b>	4	68	72	<b>5.5%</b>
<b>Nine People</b>	5	58	63	<b>7.9%</b>

Pearson Chi-Square 8.06 Sig (2-sided) p=.045\*

A loglinear analysis was performed to see if there was an interaction between Group Size and Personalization. There was no interaction. In addition, the empathy and extraversion scale scores of the recruits were compared with the percentage of participants that responded to their request and no significant correlation was found.

## Discussion

A total of 471 individuals received a private Facebook message from one of the 176 participants. 81 individuals out of the 471 (17.2%) responded to the request and completed the survey. The first hypothesis that increased group size would reduce response rates was not supported ( $\chi^2 (3) = 5.09$ ). The second hypothesis stating that personalizing the message by greeting the individual by their first name instead of just a generic 'Hi' or 'Hi all' would increase response rates was supported ( $\chi^2 (1) = 9.97, p < .01$ ). Participants in the name condition were more than two times more likely to complete the questionnaire than individuals in the no name condition. The last hypothesis had mixed results. Although smaller group size did not increase response rates when salutations were personalized, the smaller group size conditions dramatically increased response rates when the messages weren't personalized.

The lack of support for the first hypothesis that the fewer number of people included in the message would increase the response rate raises one main question. Why does this study differ from the multitude of research supporting diffusion of responsibility in offline as well as online environments? (Latane & Darley, 1968; Markey, 2000; Barron & Yechiam, 2002; Barron & Yechiam, 2003; Blair et al, 2005). There could be a myriad of reasons for this finding. For one, social media differs from other online spaces in a variety of ways. Like email, it is asynchronous but individuals vary in how often they visit the site and how long they spend on the site a day. Some individuals might not check their account frequently which could have impacted response rates. Also, Facebook 'friends' vary significantly. Individuals are connected to their closest friends as well as people that they may have only met once on social media sites. To try and control for this, participants randomly selected friends to send the message to but perhaps closer friends were chosen in particular conditions which could also have impacted the results. Yet, one of the most likely reasons is that the

name versus no name condition eliminated the bystander effect when the message was personalized. For instance, the individuals automatically noticed whether their name was included in the message and did not take into account the number of people included in the message. Markey (2000) found in his research on diffusion of responsibility in internet chatrooms that specifying a person's name in the chatroom eliminated the effect of diffusion of responsibility (Markey, 2000). This finding supports Latane and Darley's (1970) theory that individuals are more inclined to aid a bystander when they feel personally responsible for helping.

The second hypothesis, that referring to the individuals by name will increase the likelihood that an individual will help, was strongly supported. Greeting the individual by name was the strongest determinant in eliciting a response and more than doubled the response rate. This finding is in line with past research on the positive effects of personalizing salutations in offline as well as online environments (Heerwegh, 2005; Yechiam & Barron, 2003; Markey, 2000; Joinson & Reeps, 2007). Reasons for the strong increase in response rates when personalizing the request could be explained using basic social psychological theories. For example, this finding supports the social exchange theory as well as the reciprocity heuristic (Cialdini, 1984; Heerwegh, 2005; Joinson & Reeps 2007). These theories state that individuals feel respected and valued when referred to by name which results in them feeling responsible to return the respect by complying with the request (Cialdini, 1984). However, Objective Self-Awareness is another theory that could explain this phenomenon. Past research has found that individuals exposed to self-focusing stimuli are more likely to help others (Wegner & Schafer, 1978). The personal salutation could induce objective self-awareness by directing the attention of the participant inward, therefore increasing the likelihood that the individual will help.



The third hypothesis, that sending the message to fewer individuals plus referring to them by name would provide the highest response rates, had mixed results. When the messages were personalized, there was no significant difference between response rates. Yet when the messages were not personalized, increased group size decreased response rates. This finding is interesting for a variety of reasons. For one, it is in line with previous trains of thought stating that diffusion of responsibility is too simplistic a theory to explain bystander intervention. Critics of the theory of diffusion of responsibility argue that diffusion of responsibility research focuses too much on the number of people present and ignores other important factors such as bystander self-awareness, the social meanings behind non-intervention, and social categories (Wegner & Schafer, 1978; Levine, 1999). The present study highlights the issue that diffusion of responsibility might be too simplistic a theory to explain and understand helping behavior and bystander intervention, particularly in a social media environment.

Indeed this study had limitations. One limitation was the language used in the Facebook request message. To keep extraneous variables minimised, each message was worded identically except for the name versus no name salutations. Although this limited outside variables, it did create other issues. For one, people have unique styles in the way they communicate and the wording could have come across strangely for some of the participants. Also, for close friends of the recruits, the message could have appeared too formal. In addition, this study was different in that individuals sought help from their Facebook 'friends' instead of past research which focused on strangers. From research on the differences in helping between friends and strangers, it is clear that friends and family members are helped much more often than strangers (Amato, 1990). That aspect of the study could be why the results differed from past research but also makes studying online helping

behavior important. A possible future research direction could be comparing helping results from online friends versus strangers.

Another limitation is that the helping variable was categorical. The participants either helped or did not help. This limited the analysis that could be conducted. For future research, a scale variable would be more beneficial. While this would not work with helping or not helping by filling out a survey, a scale variable could be used in other contexts with social media and helping behavior. For example, a researcher could ask social media users how likely they would be to help others online in certain scenarios. Another limitation is that if a participant did not help by completing the survey, no information was obtained and therefore there is no data on their social media use to include in the analysis. An additional limitation was the sample. Participants were recruited via a convenience sample and the participants were made up of mostly university students. Yet, university students are becoming a very diverse population. Students range in age as well as race and economic background. Although a random sample would be the ideal, a convenience sample does not challenge the study itself, but does create some limitations to generalization that must be kept in mind.

There could also be alternative explanations for these findings. For one, social media is a venue where spam and malicious software (malware) are prevalent. Spam is electronic messaging systems used to send unwanted bulk messages to individuals and it unfortunately invades most internet environments (Drucker et al, 1999). Malware is defined as a program that has malicious intent. Examples of such programs include viruses, trojans, and worms (Christodorescu et al, 2005). Thus, individuals could have avoided opening the private message or clicking on the link in fear of spam or malware. This could have been accentuated in the conditions where no name(s) were specified, as spam is most common in impersonalized messaging, although more sophisticated malware and spam are beginning to use personalization as a tactic to get people to click on links and open messages. Yet, many

antivirus programs installed on computers highlight sites that are suspicious. In addition, Facebook provides a small photo next to the link to provide further information on the website. In this case, there was a small photo of the website that said 'Research on Social Media' in large letters which is an unlikely spam or malware candidate. Thus, making it doubtful that fear of spam impacted the results.

In addition, this study has practical implications. For one, with social media being used not only by individuals but by businesses and industries, it is important to know the most effective way in eliciting help and responses from individuals. It is also beneficial for researchers as well who are increasingly using social media as a recruitment tool to find participants. This study suggests that personalizing salutations is an effective way of eliciting more responses and raises important research questions about the validity of diffusion of responsibility in online environments.

In conclusion, this study provides a start for understanding helping behavior in a social media environment as well as applying relevant social psychological theories to online behavior. It highlights the similarities as well as differences between offline and online human behavior as well as highlighting the importance of personalization in online requests. It would be beneficial to build on this research. Some possible directions for future research include taking this study into other social media environments such as LinkedIn or Twitter and seeing if the results translate across social media platforms, as well as investigating further the variables that affect individuals' helpfulness and engagement on social media sites.

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